

LEAST BITTERN (*Ixobrychus exilis*)

John Sterling, 26 Palm Ave., Woodland CA 95695

Criteria Scores

Population Trend	Range Trend	Population Size	Range Size	Endemism	Population Concentration	Threats
5	5	7.5	10	0	5	5

Special Concern Priority

Currently considered a Bird Species of Special Concern, Priority 3. Included on CDFG's (1992) unprioritized list and considered a Priority 3 species on the original prioritized list (Remsen 1978).

Breeding Bird Survey Statistics for California

Data inadequate for trend assessment (Sauer et al. 2000).

General Range and Abundance

The least bittern a common breeding bird in marshes through much of the eastern United States, very locally in the western United States, in the Caribbean, parts of Mexico and northern Central America. Most populations in the United States migrate to winter in the Neotropics. The Salton Sea, Lower Colorado River Valley, southern and coastal Texas and southern Florida support least bitterns throughout the year. (Gibbs et al. 1992.)

Seasonal Status in California

The least bittern is primarily a summer resident in California with a few birds remaining during the winter in the Salton Sea area, the Lower Colorado River Valley and in coastal San Diego County (Patten et al in press, Garrett and Dunn 1981, Rosenberg et al. 1991). In southern California, they arrive from mid-March to mid-April and most depart from mid-September to mid-October (Garrett and Dunn 1981).

Historical Range and Abundance in California

Grinnell and Miller (1944) describe the least bittern as a “summer resident, doubtless fairly common....rarely remains in winter” primarily in the Sacramento and San Joaquin valleys and coastal southern California. No quantitative estimates of historic abundance exist.

Northeastern California. Only historic records are from marshes bordering Lake Tahoe (Orr and Moffitt 1971) and from the mouth of Rush Creek at Mono Lake (Grinnell and Miller 1944).

Central Valley. Historic breeding locations include: Stockton, San Joaquin County; Los Banos, Merced County; and Buena Vista Lake, Kern County (Grinnell and Miller 1944).

Southern Coast of California. Historic breeding locations include: San Luis Rey, San Diego County; Nigger Slough, Los Angeles County; near Redlands and Chino, San Bernardino County; San Jacinto Lake, Riverside County; and Port Hueneme, Ventura County (Grinnell and Miller 1944, W. Wehtje pers. comm.).

Salton Sea and Lower Colorado River Valley. Historic locations include 8 miles northwest of Calipatria and the Fort Yuma area, Imperial County. However, Grinnell (1914) failed to find least bitterns along the Lower Colorado River during three months of bird surveys (mid-February to mid-May). These surveys were conducted in 1910, shortly after the completion of the Laguna Dam in 1909 and before marsh habitat developed 10-11 years afterward. Prior to the development of marsh after the construction of diversion dams, there was very little appropriate marsh habitat along the Lower Colorado River (Rosenberg et al. 1991).

Mojave Desert. Death Valley is an historic location (Grinnell and Miller 1944).

Recent Range and Abundance in California

Northeastern California. Recent breeding season locations include: Modoc National Wildlife Refuge (2 records; 1974 and 1991), Modoc County; Lava Lakes Nature Center (1983), Siskiyou County; Honey Lake Wildlife Area (1971) and Jack Dow Wetlands (1991) Lassen County (Radke, Bloom and Ryno 1996, E.C. Bloom pers. comm., LeValley and Evens 1983, T. Manolis pers. comm. and L. Oring pers. comm.). Least bitterns are probably very rare in this region.

However, they may be more common than previous records indicate due to the difficulty in finding them, coupled with the lack of focused surveys in large areas of suitable habitat.

Northwestern California. Recent breeding season locations include: Clear Lake State Park (1974 & 2001) and Rodman Slough (1988), Lake County; and Olema Marsh (1998) (J. White pers. comm., R. Stallcup NAB files).

Central Valley. Recent breeding season locations include: Sacramento Wildlife Refuge, Glenn County; Colusa Wildlife Refuge, Colusa County; Gray Lodge Wildlife Refuge, Butte County; and Sutter Wildlife Refuge, Sutter County (T. Beedy pers. comm., B. Deuel pers. comm., J. Sterling pers. obs.). There are no confirmed sightings within the past 50 years in San Joaquin County and one recent record of a migrant in Stanislaus County (D. Yee pers. comm., J. Gain pers. comm.). There are very few records from San Luis and Merced Wildlife Refuges, Merced County during the past 20 years and no information regarding past abundance (J. Fulton pers. comm.).

Southern Coast of California. Recent breeding season locations include: San Joaquin Marsh, Orange County; Machado Lake in Ken Malloy Harbor Regional Park, El Dorado Park and Whittier Narrows, Los Angeles County; Lake Casitas, Ventura County (K. Garrett pers. comm., M. Long pers. comm., W. Wehtje pers. comm.). Least bitterns are annual but local breeders in small numbers in this region and apparently are limited to the locations listed above.

Salton Sea and Lower Colorado River Valley. Recent locations include the marshes at the Whitewater River Mouth at the north end of the Salton Sea, Riverside County, the marshes at the south end of the Salton Sea, the Finney and Ramer Lakes Wildlife Area, and Fig Lagoon near Seeley, Imperial County (G. McCaskie pers. comm.). Least bitterns have been found along the Lower Colorado River in areas of marsh habitat (Rosenberg et al. 1991, W. Hunter pers. comm.). The largest populations in the LCR live in the extensive cattail or bulrush marshes, especially at Topock NWR and Imperial NWR, and the highest densities were estimated at 40/40 hectares (Rosenberg et al. 1991). The construction of diversion dams (in 1909, 1938, 1939 and 1942)

enabled appropriate marsh habitat to develop along the Lower Colorado River (Rosenberg et al. 1991). Least bitterns are currently regarded as fairly common during the breeding season and uncommon during winter in the Salton Sea area (Patten et al. in press) and uncommon along the Lower Colorado River Valley, with a few remaining through the winter (Rosenberg et al. 1991).

Mojave Desert. Recent breeding season locations include Furnace Creek Ranch in Death Valley (only migrants?), the Saline Valley, Cottonwood Marsh at Owens Lake, Billy Lake, and Tinemaha Reservoir, Inyo County; California City (only migrants?) and close to the Mojave Desert at Prince Pond in the Lake Isabella area, Kern County (Garrett and Dunn 1981, T & J Heindel pers. comm., J. Wilson pers. comm., B. Barnes pers. comm.). Least bitterns are rare and local breeders in this region and restricted to a few areas of appropriate habitat. They are inexplicably absent from appropriate habitat at the Piute Ponds in the Antelope Valley (K. Garrett pers. obs.).

Ecological Requirements

Least bitterns nest in marsh habitats comprised of dense or moderately dense cattails or bulrush (Rosenberg et al., 1991). For marsh land cover types defined by Anderson et al. (1984), suitable least bittern habitat generally corresponds to marsh structural types V, I, II and III, although least bitterns have been observed in all marsh types along the Lower Colorado River Valley (W. Hunter pers. comm.). They can occur in sparse cattail/bulrush stands or in dense *Phragmites* stands but in lesser numbers than the preferred habitat, however, monotypic stands of *Phragmites* are generally uninhabited by bitterns during the breeding season (W. Hunter pers. comm.). Least bitterns can tolerate water levels as high as 2 feet due to their ability to place nests up to 2.5 feet above the water level and their ability to forage by perching on vegetation well above the water level (Gibbs *et al.* 1992). Annual fluctuation in water depth and residual marsh vegetation may be important factors in determining habitat use by least bitterns. However, least bitterns may withstand larger fluctuations in water levels during the breeding season as long as sites do not dry out completely or water levels destroy nests or drown hatchlings.

Threats

Operation of watercraft could adversely affect the least bittern if operation of watercraft occurs during the breeding season within or near occupied habitat. Boat wakes could swamp nests, potentially resulting in mortality of eggs or nestlings. Noise associated with watercraft operation could also flush adults from nests and potentially reduce nesting success. Conducting wildlife surveys for this species or other marsh wildlife, could cause disturbance to nesting least bitterns if conducted in or near occupied nesting territories. This effect, however, would likely be negligible because it would be a temporary and, presumably, infrequent disturbance. Operation of equipment and other activities associated with restoring and maintaining riparian habitats adjacent to occupied marsh habitat may also cause temporary disturbance to nesting or dispersing least bitterns. Contaminants could threaten bitterns directly through poisoning or indirectly through reducing the availability of prey. Management of marsh habitat for duck production in some federal wildlife refuges is currently on four-year cycles. This management strategy precludes the development of large stands of suitable nesting habitat by calling for the removal of marsh vegetation once it reaches 70% cover (J. Fulton pers. com.).

Management and Research Recommendations

The highest conservation priority for the species is the preservation, protection and improvement of shallow, large marshes >10 hectares with dense emergent vegetation (Gibbs et al. 1992). Protect existing patches of habitat used by breeding, wintering and dispersing least bitterns at sites identified as occupied habitat from recent records and during future monitoring studies. Evaluate current management practices on protected lands under federal or state jurisdiction to determine if they are adequate to maintain least bittern habitat. For example, extend the current four-year cycle for refuge marsh management to 7 or so years in order to ensure the development of large patches of suitable least bittern nesting habitat. If current management practices on these protected lands are not adequate, then develop, fund, and implement management plans to ensure that least bittern

nesting habitat is maintained. To the maximum extent practicable, redesign management and other activities to avoid loss of occupied and unoccupied habitat. Replace least bittern habitat lost as a result of management and other activities. This compensatory restoration will replace the ecological functions of lost habitat areas, and shall be implemented before impacts on nesting habitat are incurred. Convert non-habitat marsh acreage to least bittern habitat. Avoid construction-related and other activities that could disturb least bitterns during their nesting season (May-September).

Develop a least bittern survey protocol that is based on research developed to determine the most accurate and efficient techniques and survey periods. This species is relatively difficult to survey without a comprehensive knowledge of the variety of least bittern vocalizations (Rosenberg et al. 1991, W. Hunter pers. comm., C. Conway pers. comm.). In addition, they may breed semi-colonially and require fairly large marshes for breeding, although this has not been formally studied (C. Conway pers. comm.).

Monitoring Needs

The state's breeding population should be monitored every 3-5 years using a protocol that is developed to ensure accurate results. During periods of drought, monitoring should focus on locations where water levels are dependent upon natural hydrological conditions. Monitoring of the effects on least bittern survivorship and productivity of selenium and other toxins at the Salton Sea and other areas of potential contamination. Populations and habitat suitability in the Salton Sea area should be closely monitored with respect to the increasing salinity of the sea.

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